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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/591,223	08/31/2006	Roger John Leach	COLGRA P68AUS	7816

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EXAMINER	
KHATRI, PRASHANT J	
ART UNIT	PAPER NUMBER
1794	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/591,223	LEACH, ROGER JOHN	
	Examiner	Art Unit	
	PRASHANT J. KHATRI	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *25-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *25-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/31/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 31, 34, 36, 41 and 43 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear as to the parameters of the phrases "mainly" and "substantially" is regarded as.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 25-28 and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Gerhardinger et al. (***US 5714199***).

5. Gerhardinger et al. disclose a method for applying a polymer powder onto a pre-heated glass substrate and article made thereof. Prior art discloses that the method is an in-line production method wherein said method is comprised of delivering a pre-polymer powder to the substrate which is at a temperature of about 300-450°F (***claim 2***). The pre-polymer powder may be thermoplastic or thermosetting, specifically epoxies or epoxy/polyester hybrids (***col. 5, lines 1+***). Examiner notes that the substrate

is above the glass transition temperature of the polymer powder, which would polymerize and coat the surface (***col. 2, lines 29+***). Examiner takes the position that in the broadest sense that the heat within the glass substrate after formation would radiate heat through the substrate to allow for an even coating of the material onto the surface and thereby cure the powder to form the coating. Concerning the adhesion promoter, prior art discloses the use of a silane may be included within the powder (***col. 5, lines 19+***) or sprayed on prior to the application of the pre-polymer powder (***col. 9, lines 29+***). Examiner takes the position that silanes are known adhesion promoters and used to enhance bonding between dissimilar surfaces.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 25-31 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. in view of Sopko (***US 4022601***) and Wang (***book***).

8. Gerhardinger et al. disclose a method for applying a polymer powder onto a pre-heated glass substrate and article made thereof. Prior art discloses that the method is an in-line production method wherein said method is comprised of delivering a pre-polymer powder to the substrate (***claim 2***). The pre-polymer powder may be thermoplastic or thermosetting, specifically epoxies or epoxy/polyester hybrids (***col. 5,***

lines 1+). Examiner notes that the substrate is above the glass transition temperature of the polymer powder, which would polymerize and coat the surface (***col. 2, lines 29+***). Concerning the adhesion promoter, prior art discloses the use of a silane may be included within the powder (***col. 5, lines 19+***) or sprayed on prior to the application of the pre-polymer powder (***col. 9, lines 29+***). Examiner takes the position that silanes are known adhesion promoters and used to enhance bonding between dissimilar surfaces. However, prior art is silent to the use of infrared sources for heating.

9. Sopko discloses a method and apparatus for coating a glass substrate. Prior art discloses the method of depositing a vaporized pyrolizable organometallic salt material onto a substrate (***col. 4 bridged to 5, lines 66+***). Examiner considers the vaporization of the material equivalent to the powdered form as the solvent is evaporated and the particles are left to adhere to the surface. As shown in Figure 1, the glass material is heated on the other side of the vaporization nozzles. The purpose of the heating means is to prevent glass warpage and thereby improve durability of the coating (***col. 9 bridged to 10, lines 66+***). Examiner takes the position that heating the substrate from the opposite side of the vaporization nozzles would also result in an even coating of the deposited material due to the reduction of warpage. Prior art discloses the heating means may be infrared lamps or infrared reflectance heaters and multiple heaters may be used (***col. 10, lines 1+***). Regarding claims 30 and 31, Examiner considers the infrared reflectance heaters to function by reflecting radiation off of the inner walls to focus the heat onto a surface.

10. As evidenced by Wang, most infrared heaters have reflectors to focus the radiation to a target (***p. 8.32***).

11. All of the elements were known within the art but not in a single disclosure. Gerhardinger et al. disclose a method of forming a coated glass substrate and resultant article. Sopko discloses a method and apparatus for coating a glass substrate but is silent to the use of polymeric powders. Examiner would like to note that although the process disclosed by Sopko is directed to deposition of organometallic materials, the primary motivation to apply heat from the opposite side of the vaporization nozzles is to prevent glass warpage and further increase the durability of the coating. Furthermore, the increased durability of the coating would lead to a coating that is more complete and less likely to delaminate. Therefore, it would have been obvious to apply heat from the opposite side of the vaporization nozzles with the materials disclosed by Gerhardinger for the present invention, which would have a coating layer that is durable and may prevent delamination.

12. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sopko in view of Gerhardinger et al. as applied to claims 25 and 29 above, and further in view of Horinka (***article***).

13. Sopko discloses a method and apparatus for coating a glass substrate but is silent to the use of polymeric powders. Gerhardinger et al. disclose a method of forming a coated glass substrate and resultant article. However, prior art is silent to controlling frequency.

14. Horinka discusses the relationship between frequency, wavelength, and energy level for infrared curing process of powder coatings. It is noted that wavelength is inversely proportional to frequency; therefore, at longer wavelengths, the frequency would be lower and at shorter wavelengths, the frequency would be higher. Furthermore, as disclosed by prior art low energy is equivalent to low temperatures and high energy to high temperatures (***p. 1***). Prior art additionally discloses that some systems may have controls whereby the voltage may be adjusted (***p. 2***). Examiner takes the position that controlling voltage would thereby control the energy disposed.

15. However, note that while Horinka does not disclose all the features of the present claimed invention, Horinka is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the effect of frequency on infrared energy in order to show that frequency may be controlled by increasing or decreasing voltage and in combination with the primary reference, discloses the presently claimed invention.

16. Horinka is drawn to discussing the various factors associated with infrared curing during a powder coating process. Varying the frequency, or energy would be obvious to one with ordinary skill in the art as it is recognized that at higher energies, the material would melt faster and for an even coating that does not degrade, a control would be added to the system.

17. Claims 33-36 and 39-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sopko in view of Gerhardinger et al. as applied to claim 25 above, and further in view of Leach (***US 5300174***), Bowser (***US 3758996***), and Weinlader (***article***).

18. Sopko discloses a method of coating a glass substrate in paragraph 8 and Gerhardinger et al. disclose a coating process of a powdered polymeric material onto a glass substrate. Both references, however, are silent to the use of a metal foil for a reduction in thermal stresses.

19. Leach discloses a layer of aluminum foil disposed onto the surface of the powdered coating. Prior art discloses the foil has a nominal thickness of about 0.1 mm (***col. 4, lines 6+***). Since thermal conduction is dependent on thicknesses, Examiner considers the thickness of the foil to be dependent on the thickness of the glass substrate and thickness of the coating as thermal stresses may accumulate if the thickness of foil is not adequate. Therefore, it would have been obvious to control the thickness to values including those presently claimed, in order to control thermal stresses. It is noted that prior art discloses the aluminum foil provides for temperature stability on the glass (***col. 4, lines 44+***). Examiner takes the position that the equalization of temperature variations would thereby prevent thermal stresses from accumulating and causing failure of the product. However, prior art is silent to the specific distances claimed.

20. Bowser discloses a layer of aluminum foil disposed along the marginal edges of glass sheets (***FIGS. 2, 4, 6, and 9***). Prior art discloses the aluminum foil surrounds a

layer of a mastic adhesive (***col. 3, lines 46+***). Examiner notes that although the mastic adhesive may be thermoplastic, the reference is drawn to the sealer element (i.e. the aluminum foil). Concerning the sizes, it appears that the since glass panel has dimensions of 14 inches by 20 inches (***col. 9, lines 8+***) and since the material overlaps an amount, Examiner takes the position that the aluminum foil measurement will be sufficient to prevent thermal stresses from forming.

21. It is also noted that thermal radiation is a function of frame overlap as evidenced by Weinlader et al. (***journal article***). Since thermal radiation is a function of frame overlap, the amount of thermal stresses accumulated would therefore vary as well depending on the size of the frame overlap. Therefore, the amount of overlap, including that which is presently claimed, would be obvious to control as to minimize thermal stress. As shown, in Figure 5, the overlap amount reaches an asymptotic value and is further dependent on the dimensions of the panes. Examiner takes the position that at a certain point the length of the overlap will not aid in reducing thermal radiation and therefore, provide the producer a minimum overlap to achieve the desired thermal properties.

22. All of the elements were known within the art but not as a single disclosure. Leach discloses a layer of aluminum foil disposed onto the surface of the powdered coating. Bowser discloses a layer of aluminum foil disposed along the marginal edges of glass sheets. The motivation to apply the foil only on the edges is that less material may be used since the processing will be done on an inline-type production platform to allow for similar results to a full layer, which would thereby decrease production costs.

23. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. in view of Leach (***WO 00/20347***).

24. Gerhardinger et al. disclose a method for applying a polymer powder onto a pre-heated glass substrate and article made thereof. Prior art discloses that the method is an in-line production method wherein said method is comprised of delivering a pre-polymer powder to the substrate which is at a temperature of about 300-450°F (***claim 2***). The pre-polymer powder may be thermoplastic or thermosetting, specifically epoxies or epoxy/polyester hybrids (***col. 5, lines 1+***). Examiner notes that the substrate is above the glass transition temperature of the polymer powder, which would polymerize and coat the surface (***col. 2, lines 29+***). Examiner takes the position that in the broadest sense that the heat within the glass substrate after formation would radiate heat through the substrate to allow for an even coating of the material onto the surface. Concerning the adhesion promoter, prior art discloses the use of a silane may be included within the powder (***col. 5, lines 19+***) or sprayed on prior to the application of the pre-polymer powder (***col. 9, lines 29+***). Examiner takes the position that silanes are known adhesion promoters and used to enhance bonding between dissimilar surfaces. However, prior art is silent to the use of a second thermosetting layer.

25. Leach discloses coatings onto a glass substrate wherein the coatings are comprised of different thermosetting materials that may have different cure rates (***abstract***). Prior art discloses heat is applied to the melt to fuse the two coatings while being bonded to the substrate (***p. 1, lines 25+***). Since thermal conduction is dependent on thicknesses, Examiner considers the thickness of the foil to be dependent

on the thickness of the glass substrate and thickness of the coating as thermal stresses may accumulate if the thickness of foil is not adequate. Therefore, it would have been obvious to control the thickness to values including those presently claimed, in order to control thermal stresses. It is noted that prior art discloses the aluminum foil provides for temperature stability on the glass (***col. 4, lines 44+***). Examiner takes the position that the equalization of temperature variations would thereby prevent thermal stresses from accumulating and causing failure of the product. However, prior art is silent to the specific distances claimed.

26. Gerhardinger et al. disclose a method for applying a polymer powder onto a pre-heated glass substrate and article made thereof. Prior art, however, is silent to a second thermosetting layer. Leach discloses multiple thermosetting layers on a glass substrate. The motivation to combine the above references is drawn to the fact that multiple colors may be produced, which would be visually appealing the consumer with a further consideration that if the second layer is transparent, the second layer may serve as a protective coating overlay. Therefore, it would have been obvious to one of ordinary skill in the art to apply a second thermosetting layer to the laminate disclosed by Gerhardinger.

27. Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gerhardinger et al. in view of Leach (***WO 00/20347***) as applied to claim 37 above, and further in view of Leach (***US 5300174***), Bowser, and Weinlader.

28. Gerhardinger et al. disclose a method of applying a polymer powder onto a preheated glass substrate. Leach discloses a second thermosetting polymer powder applied to a glass substrate. Prior art, however, is silent to the use of a foil material.

29. Leach discloses a layer of aluminum foil disposed onto the surface of the powdered coating. Prior art discloses the foil has a nominal thickness of about 0.1 mm (***col. 4, lines 6+***). Since thermal conduction is dependent on thicknesses, Examiner considers the thickness of the foil to be dependent on the thickness of the glass substrate and thickness of the coating as thermal stresses may accumulate if the thickness of foil is not adequate. It is noted that prior art discloses the aluminum foil provides for temperature stability on the glass (***col. 4, lines 44+***). Examiner takes the position that the equalization of temperature variations would thereby prevent thermal stresses from accumulating and causing failure of the product. However, prior art is silent to the specific distances claimed.

30. Bowser discloses a layer of aluminum foil disposed along the marginal edges of glass sheets (***FIGS. 2, 4, 6, and 9***). Prior art discloses the aluminum foil surrounds a layer of a mastic adhesive (***col. 3, lines 46+***). Examiner notes that although the mastic adhesive may be thermoplastic, the reference is drawn to the sealer element (i.e. the aluminum foil). Concerning the sizes, it appears that the since glass panel has dimensions of 14 inches by 20 inches (***col. 9, lines 8+***) and since the material overlaps an amount, Examiner takes the position that the aluminum foil measurement will be sufficient to prevent thermal stresses from forming.

31. It is also noted that thermal radiation is a function of frame overlap as evidenced by Weinlader et al. (***journal article***). It is noted that since thermal radiation is a function of frame overlap, the amount of thermal stresses accumulated would therefore vary as well depending on the size of the frame overlap. Therefore, it would have been obvious to control the amount of overlap to achieve desired thermal properties.

32. All of the elements were known within the art but not as a single disclosure. Leach discloses a layer of aluminum foil disposed onto the surface of the powdered coating. Bowser discloses a layer of aluminum foil disposed along the marginal edges of glass sheets. The motivation to apply the foil only on the edges is that less material may be used since the processing will be done on an inline-type production platform to allow for similar results to a full layer, which would thereby decrease production costs while still maintaining a visually appealing article. The motivation to combine the above references is drawn to the fact that multiple colors may be produced, which would be visually appealing the consumer with a further consideration that if the second layer is transparent, the second layer may serve as a protective coating overlay. Therefore, it would have been obvious to one of ordinary skill in the art to apply a second thermosetting layer to the laminate disclosed by Gerhardinger.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PRASHANT J. KHATRI whose telephone number is

(571)270-3470. The examiner can normally be reached on M-F 8:00 A.M.-5:00 P.M. (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PRASHANT J KHATRI
Examiner
Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794